

SEATTLE FIRE DEPARTMENT

Information Bulletin #2003-5



Home Oxygen Safety

This bulletin provides general safety information for oxygen concentrators, compressed gas cylinders, oxygen-conserving devices, and liquid oxygen systems used for medical purposes in private homes, apartments and condominiums.

Oxygen

Oxygen is not flammable, but it can cause other materials that burn to ignite more easily and to burn far more rapidly. The result is that a fire involving oxygen can appear explosive-like.

Oxygen is of great benefit to those in need of oxygen therapy but it should always be handled with caution and awareness of the potential hazards.

The Equipment

There are three common ways of providing oxygen therapy. Oxygen can be delivered to your home in the form of a gas in various-sized cylinders or as a liquid in a vessel. The third way to provide oxygen therapy is by using an oxygen concentrator. Each method is examined in more detail below.

Compressed Gas--Oxygen is stored under pressure in a cylinder equipped with a regulator that controls the flow rate. Because the flow of oxygen out of the cylinder is constant, an oxygen-conserving device may be attached to the system to avoid waste. This device releases the gas only when you inhale and cuts it off when you exhale. Oxygen can be provided in a small cylinder that can be carried with you, but the large tanks are heavy and are only suitable for stationary use.

Liquid oxygen--Oxygen is stored as a very cold liquid in a vessel very similar to a

thermos. When released, the liquid converts to a gas and you breathe it in just like compressed gas. This storage method takes up less space than the compressed gas cylinder, and you can transfer the liquid to a small, portable vessel at home. Liquid oxygen is more expensive than the compressed gas and the vessel vents when it is not in use. An oxygen-conserving device may be built into the vessel to conserve the oxygen.

Oxygen concentrator--This is an electronically powered device that separates the oxygen out of the air, concentrates it, and stores it. This system has a number of advantages because it doesn't have to be re-supplied and it is not as costly as liquid oxygen. Extra tubing permits the user to move around with minimal difficulty. Small, portable systems have been developed that afford even greater mobility. You must have a cylinder of oxygen as a backup in the event of a power failure.

Quantity Limits

- Do not use individual compressed gas oxygen cylinders that exceed 250 cubic feet at normal temperature and pressure.
- Do not use liquid oxygen vessels that exceed 10 gallons.

Safety

- Never smoke while using oxygen.
- Warn visitors not to smoke near you when you are using oxygen.

- Post at least one NO SMOKING sign in a prominent place at the entrance to your home.
- When you go to a restaurant with your portable oxygen source, sit in the nonsmoking section and away from any open flame such as candles or warming burners.
- Stay at least five feet from gas stoves, candles, lighted fireplaces and other heat sources.
- Keep oxygen cylinders and vessels in a well-ventilated area (not in closets, behind curtains, or other confined space). The small amount of oxygen gas that is continually vented from these units can accumulate in a confined space and become a fire hazard.
- Keep oxygen cylinders and vessels a minimum of 8 feet from heaters, heat producing and electrical appliances.
- Secure oxygen cylinders and vessels to a fixed object or place in a stand.
- Oxygen cylinders and vessels must remain upright at all times. Never tip an oxygen cylinder or vessel on its side or try to roll it

**!WARNING!
RISK OF COLD-CONTACT
BURNS**

Liquid oxygen is extremely cold (-297 degrees Fahrenheit). Touching liquid oxygen or parts of an oxygen system in contact with liquid oxygen can quickly freeze the skin. The vapors from the liquid oxygen are also extremely cold and can damage delicate tissues, such as eyes. To prevent injury from freezing, never allow any unprotected skin to contact frosted parts of liquid oxygen vessels and stand clear of vapors.

to a new location.

- Always operate oxygen cylinder or container valves slowly. Abrupt starting and stopping of oxygen flow may ignite any contaminant that might be in the system.
- Turn the cylinder valve off when not using your oxygen.
- Only use a properly grounded wall outlet for your oxygen concentrator.
- Do not use extension cords for your oxygen concentrator.
- Do not place the electrical cord or oxygen tubing under rugs or furniture.
- Do not use any flammable products like cleaning fluids, paint thinner, or aerosol sprays while using your oxygen.
- Keep all grease, oil and petroleum products (even small amounts) and flammable materials away from your oxygen equipment. Some organic materials can react violently with oxygen if ignited by a hot spark.
- Use water-based lubricants on your lips and hands. Don't use an oil-based product like petroleum jelly, petroleum based creams or lotions.
- Do not use bedding or clothes made of wool, nylon or synthetic fabrics as these materials have the tendency to produce static electricity. The use of cotton material bedding and clothes will avoid sparks from static electricity.
- Do not allow children or untrained individuals to handle or operate oxygen equipment.
- Always have your gas supplier's number handy.
- Ensure that you have an all purpose fire extinguisher close by and familiarize yourself with its use.